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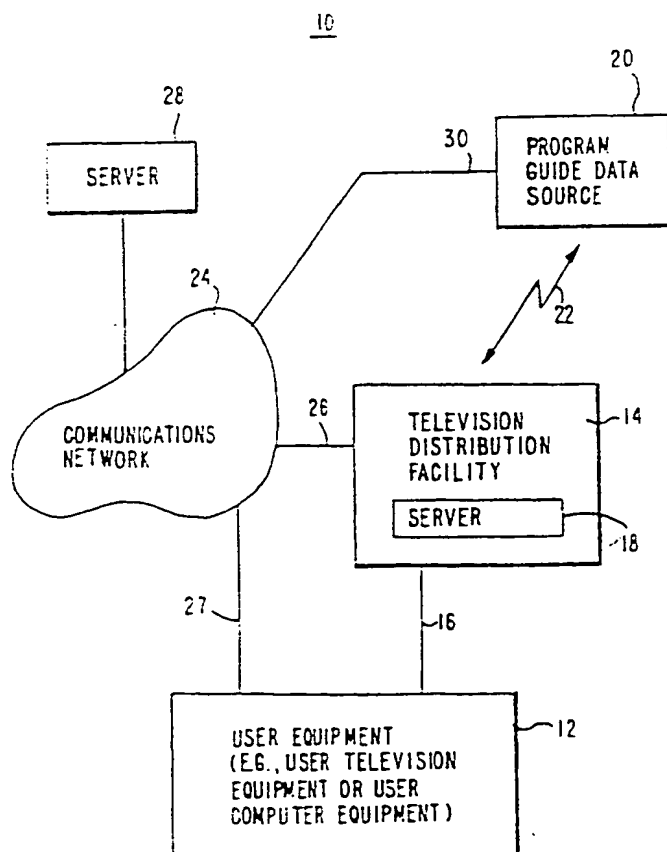
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(54) Title: INTERACTIVE TELEVISION SYSTEM WITH WEB SITES ASSIGNED TO CHANNEL NUMBERS



(57) Abstract: An interactive television program guide system is provided in which channel numbers may be assigned to both television channels and web sites. An interactive television program guide or other interactive television application may display screens that contain information for both television channel numbers and web site channel numbers. Users may set reminders, favorites, and parental controls for television channels and web site channels. An interactive television program guide application may display the web site channel numbers on flip and browse overlay bars.

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INTERACTIVE TELEVISION SYSTEM WITH WEB SITES  
ASSIGNED TO CHANNEL NUMBERS

This application claims the benefit of U.S. provisional patent application No. 60/168,826, filed December 3, 1999.

Background of the Invention

This invention relates to television systems, and more particularly, to interactive television systems.

Interactivity in television systems may be provided by using an interactive television application such as an interactive television program guide or other suitable software to display information to a user on the user's television and to respond to commands from the user. Such interactive television applications may be implemented using user television equipment. The user television equipment may include a set-top box connected to a monitor such as a television. Interactive television features may also be provided using an interactive television application that is implemented using user computer equipment such as a personal computer with a television tuning card. User television equipment and user computer equipment may be provided with capabilities to access the Internet. For example, a web browser may be provided

on a set-top box or a personal computer. The user may use the web browser to access web sites of interest.

It is an object of the present invention to provide an interactive television system in which web sites may be assigned to different channel numbers.

#### Summary of the Invention

In accordance with the present invention, web site links (URLs) may be assigned to specific channel numbers. In an interactive television program guide system, for example, channel numbers 1-200 may be assigned to television channels and channels 201-300 may be assigned to web sites.

Program listings information may be provided to the interactive television program guide. A channel map may be associated with the program listings. The channel map may contain information associating certain television services with certain television channel numbers. Web site links may be assigned specific channel numbers in the channel map.

When the user tunes to these channels, the web site link information may be displayed on a "flip" bar. A flip bar is an example of an overlay that may be displayed on the user's monitor as the user changes channels (using, for example, up and down channel keys on a remote control). When the user tunes to a television channel, the flip bar may be used to display information on the current television channel, the title of the current television program on the current channel, and other program listings information for the current channel. When the user tunes to a channel for a web site, the flip bar may be used to display information on the URL for the web site, an assigned

channel or site name (if any), and other information related to the web site for that channel.

Program listings information and web site information may also be displayed on a "browse" bar. A  
5 browse bar is an example of an overlay that may be displayed on the user's monitor as the user presses up and down arrow keys on a remote control. Unlike the flip bar, the browse bar allows the user to browse channels other than the current channel without  
10 changing channels. If the user desires to tune to a channel that is displayed in the browse bar, the user may press a suitable remote control key (e.g., an OK or enter or select key). For example, if the user has browsed to a web site channel of interest, the user can  
15 direct the system to retrieve the web page associated with that channel by pressing the OK button while the browse bar for that channel is being displayed.

Web site links may also be displayed on listing screens and menus within the program guide and  
20 can be accessed from guide screens.

The channel assignments of web site links may be configurable by the user. There may also be web site link channel assignments that are configured by the cable operator. Such assignments may be  
25 unchangeable by the user.

A remote control "information" key may be used to retrieve information associated with web site channels (in guide screens and "flip" or "browse" bars). For example, general information may be  
30 retrieved about the nature of the web site associated with the web site channel.

Cable-operator-assigned web site channels and other web site channels may carry a variety of information including advertising.

Web site channels may be color coded or otherwise visually differentiated to indicate that they are web site channels and not television channels. Such visual differentiation may be used on any suitable program listings screen provided by an interactive television program guide, may be used on a flip bar or a browse bar, or may be used in any other screen provided by an interactive television application.

If desired, web sites may be configured manually by the user or by the cable operator, or may be configured automatically by the interactive television program guide. For example, the program guide (or user or operator) may dynamically create a web site channel for election results. Once the election is over, the channel assignment may be reused.

The system may allow users to set reminders for events on web site channels. For example, users may be provided with opportunities to set reminders for scheduled events such as chat sessions, interviews, webcasts, etc. The reminder may be provided to the user in the form of a pop-up overlay that is displayed on top of the current television program or other content being displayed on the user's monitor. The reminder may also be provided in the form of e-mail, a paging message, etc.

The system may allow the user to set parental controls. For example, the user may wish to lock a web site channel with adult television-centric TV ratings and MPAA ratings.

The system may allow the user to set web site channels as "favorite" channels. Favorite web site channels may be established by pressing a remote control favorites ("fav") key whenever the user has selected a web site channel. A list of selected

favorite web site channels may be displayed by an interactive television application such as the program guide.

Once favorite web site channels have been established, the user may quickly navigate to these channels by pressing the fav key (for example). The fav key may be used for navigation while flipping (displaying information about the current channel while displaying the current channel), while browsing (displaying information on programs on at different times or on different channels than the current channel while displaying the current channel), while viewing screens such as those that include program listings, or while using any other suitable interactive television feature. Navigation may be to all favorites of all types (e.g., both television channels and web site channels), or navigation may be constrained to just web site channels.

If desired, interactive features and applications other than web site links may be assigned to channels. For example, channel numbers may be assigned to applications such as e-mail applications, stock tracking applications, e-commerce applications, etc.

Further features of the invention, its nature and various advantages, will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

### Brief Description of the Drawings

FIG. 1 is a schematic diagram of an illustrative interactive television system in accordance with the present invention.

FIG. 2 is a schematic diagram of illustrative user television equipment in accordance with the present invention.

FIG. 3 is schematic diagram of additional illustrative user television equipment in accordance with the present invention.

FIG. 4 is a schematic diagram of illustrative user computer equipment in accordance with the present invention.

FIG. 5 is a schematic diagram of illustrative user equipment in accordance with the present invention.

FIG. 6 is a diagram of an illustrative channel map in accordance with the present invention.

FIG. 7 shows illustrative screens that include a flip bar in accordance with the present invention.

FIG. 8a shows illustrative screens that include a browse bar in accordance with the present invention.

FIG. 8b shows an illustrative browse or flip arrangement in which the current content is embedded in a window in accordance with the present invention.

FIG. 8c shows how a user may browse to a program listing for a future program or a web content description for future web content in accordance with the present invention.

FIG. 9 is a flow chart of illustrative steps involved in changing a channel map in accordance with the present invention.

FIG. 10 shows an illustrative screen in which an advertisement has been inserted in accordance with the present invention.



FIG. 11 shows an illustrative program listings screen that may be provided by an interactive television program guide and a web site information screen to which the user may be taken when a web site channel is selected in accordance with the present invention.

FIG. 12 shows illustrative screens that may be used in providing a reminder to the user and allowing the user to tune to the channel associated with the reminder in accordance with the present invention.

FIG. 13 is a flow chart of illustrative steps involved in allowing the user to navigate in a favorites mode in accordance with the present invention.

FIG. 14 shows illustrative screens that may be provided when the user navigates with a favorites key in accordance with the present invention.

FIG. 15 shows an illustrative screen that may be provided when a web site channel is locked in accordance with the present invention.

FIG. 16 shows an illustrative series of screens that may be displayed as the user browses or flips through channels associated with different types of content and applications in accordance with the present invention.

#### Detailed Description of the Preferred Embodiments

An illustrative interactive television system 10 is shown in FIG. 1. A user at user equipment 12 may receive television programming and other services from television distribution facility 14 over communications path 16. Television distribution facility 14 may be a satellite television facility, a cable system headend,

a broadcast facility, or any other suitable facility for distributing television programming to the user. Communications path 16 may be a satellite link, a broadcast link, a cable link, a fiber-optic link, a combination of such links, or any other suitable link.

Television programming may be provided over path 16 using any suitable approach. For example, television programming may be provided as analog television signals, as digital streams, or as a combination of analog signals and digital streams.

An interactive television program guide may be implemented using user equipment 12. For example, an interactive television program guide may be implemented on user equipment 12. If desired, the interactive television program guide may be implemented using a client-server or distributed architecture in which user equipment 12 acts as the client processor and servers or other computing equipment such as server 18 act as one or more server processors.

Program guide data for the program guide application (e.g., program listings, program descriptions, etc.) may be provided to the program guide for storage in a program guide database. Such a database may be maintained on a server such as server 18 or on user equipment 12 or any other suitable location. Program guide data and other data used by the program guide may be distributed using any suitable data distribution technique. For example, if the program guide application is implemented using user equipment 12, program guide data may be distributed to user equipment 12 in the television vertical blanking interval, on a cable sideband, using a separate data path from the television signal (e.g., a digital out-of-band channel), etc.

User equipment 12 may connect to the Internet or other suitable communications network 24 via path 16, television distribution facility 14, and path 26. Path 26 may be any suitable communications path, such as a cable link, a satellite link, a fiber-optic link, a telephone link, or any other such path or combination of such paths.

User equipment 12 may also connect to communications network 24 over link 27, which may be any suitable communications path, such as a cable link, a satellite link, a fiber-optic link, or any other such path or combination of such paths.

Regardless of how user equipment 12 connects to communications network 24, user equipment 12 may access content at computers such as server 28. For example, user equipment 12 may support a web browser that allows the user to view web pages or the like. If desired, the user may view web pages that are stored on server 18 using a web browser.

Applications other than web browser applications may also be used to access content and services from computers such as server 18 and server 28. Suitable applications include interactive program guide applications, e-mail applications, home shopping applications, home banking applications, video-on-demand applications, etc.

Servers such as servers 18 and 28 may be associated with Internet service providers, cable system operators, broadcast or satellite television operators, etc.

If desired, program schedule information may be provided to user equipment 12 from program guide data source 20 using communications path 30, communications network 24, and communications path 27.

Communications path 30 may be any suitable communications path, such as a wired link, a satellite link, a fiber-optic link, or any other such path or combination of such paths.

5           Users may use various types of user equipment to receive television programming from television distribution facility 14 and to access services such as interactive television program guides and non-program-guide applications. For example, user equipment may be  
10   based on user television equipment such as a set-top box and a television. User equipment may also be based on a personal computer. If desired, user equipment arrangements may be based on personal computer televisions (PC/TVs) and WebTV boxes.

15           Illustrative user television equipment 32 is shown in FIG. 2. Set-top box 34 may receive television programming and data at line or input 35. Set-top box 34 may have analog and digital television tuning circuitry for handling analog and digital television  
20   signals. Television signals may be passed to videocassette recorder 36 for recording. Set-top box 34 may also control the operation of videocassette recorder 36. For example, set-top box 34 may issue infrared commands that are received by videocassette  
25   recorder 36 at the same inputs at which standard remote control commands are received.

          Videocassette recorder 36 may be connected to television 38. Television programming and graphic display screens generated by applications implemented  
30   using set-top box 34 may be passed from set-top box 34 to television 38 through videocassette recorder 36. If desired, videocassette recorder 36 may be omitted.

          Set-top box 34 has memory and processing circuitry. This allows set-top box 34 to be used to

implement applications that support an interactive television program guide, web browsing and Internet access, and other services such as home shopping, home banking, and video-on-demand services, etc.

5           A remote control 40 such as an infrared remote control may be used to control set-top box 34, videocassette recorder 36, and television 38. Remote control 40 may have buttons 42 such as a power button, right, left, up, and down arrow keys, an OK or select  
10 key, a favorites or fav key, a lock or parental control key, etc.

          Illustrative user television equipment 44 based on a digital video recorder 46 is shown in FIG. 3. Digital video recorder 46 may receive television  
15 programming and may access interactive services using line or input 48. Digital video recorder 46 may have analog and digital tuning circuitry to receive and process television signals. Digital video recorder 46 may be used to record television programs in any  
20 suitable format. For example, digital videos may be stored using the MPEG-2 format.

          Recorded videos or real-time videos from input 48 may be displayed on television 50 or any other suitable monitor. A remote control 52 such as an  
25 infrared remote control may be used to control digital video recorder 46 and television 50. Remote control 52 may have buttons such as a power button, right, left, up, and down arrow keys, an OK or select key, a favorites or fav key, a lock or parental control key,  
30 etc.

          Digital video recorder 46 has memory and processing circuitry that allows digital video recorder 46 to be used to implement applications that support an interactive television program guide, web browsing and

Internet access, and other services such as home shopping, home banking, and video-on-demand services, etc. Television programming and display screens generated by interactive applications may be displayed  
5 on television 50.

Illustrative user computer equipment 54 is shown in FIG. 4. User computer equipment 54 may be based on a personal computer 56 or any other suitable computing device. Personal computer 56 may receive  
10 television programming and information for interactive services using line or input 58. Personal computer 56 may contain a tuner card 60 or other suitable circuitry for handling analog and digital television signals. Personal computer 56 may also contain memory and  
15 processing circuitry that allows personal computer 56 to be used to implement applications that support an interactive television program guide, web browsing and Internet access, and other services such as home shopping, home banking, and video-on-demand services,  
20 etc.

Television signals and screens generated by interactive applications may be displayed on monitor  
62.

The user may interact with personal computer  
25 56 using any suitable user input interface, such as keyboard 62, a pointing device such as a trackball, mouse, or touch pad, a voice recognition system, a handwriting recognition system, etc. If desired, the user may interact with personal computer 56 using a  
30 wireless remote control such as remote control 64. Remote control 64 may be, for example, an infrared remote control.

User equipment 12 such as user television equipment 32 or 44 of FIGS. 2 and 3 and user computer

equipment 54 of FIG. 4 may communicate with communications network 24 and television distribution facility and other facilities using telephone modems, cable modems, digital subscriber line (DSL) modems, integrated digital services network (ISDN) modems, wireless communications circuitry, or any other suitable communications circuitry.

A generalized schematic diagram of user equipment 12 of FIG. 1 is shown in FIG. 5. Control circuitry 66 and memory and storage 70 may have communications and memory and processing circuitry for supporting functions such as receiving television programming and accessing interactive services over line 68. Line 68 may connect to communications paths such as paths 16 and 27 of FIG. 1. Videos may be stored in storage 70. Television programming and text, graphics, and video associated with interactive services may be presented to the user with display 72. Display 72 may be a television, a computer monitor, or any other suitable display equipment.

The user may interact with control circuitry 66 using any suitable user input interface 74, such as a remote control, a keyboard, a wireless keyboard, a display remote, a handheld computer, a mouse, a trackball, a touch pad, or any other suitable input device.

Program listings information may be provided to the user with user equipment 12. For example, an interactive television program guide that is implemented using user equipment 12 may be used to display various screens of program listings organized by time, by television channel, by time and channel (e.g., in the form of a grid or the like), etc.

Program guide data sources such as program guide data source 20 may distribute television program listings to multiple television distribution facilities. Only one such television distribution facility 14 is shown in FIG. 1 to avoid overcomplicating the drawings. Each television distribution facility may have a different channel lineup. For example, one television distribution facility may offer HBO, while another television distribution facility may not. Moreover, each television distribution facility may order channels differently. In one service area HBO may appear on channel 14, whereas in another service area HBO may appear on channel 22. As a result, the program listings information that is stored in program guide data source 20 is a superset of the information needed by any particular user.

Channel maps for each service area may be used to associate the channel numbers that the user sees on their set-top box or other user equipment with the appropriate services. If desired, the information for a channel map may be maintained using multiple data structures in one or more locations. For example, a channel map may be implemented using a table in each set-top box that associates channel numbers with unique identifiers for each content source and a table that is part of a program guide database and that associates the source IDs with the call letters for each content source. If desired, web site identifiers such as URLs may be listed in another table (e.g., a table located on a set-top box or in the program guide database, etc.).

An illustrative channel map 76 is shown in FIG. 6. In the example of FIG. 6, television channel



number 1 is associated with the television service TVN, television channel number 2 is associated with the television service CBS, etc.

Channel map 76 may also contain information that associates certain channel numbers with services other than television channels or networks. For example, channel number 101 may be associated with the Yahoo home page, which is located at the URL www.yahoo.com. Channel number 102 may be associated with the web site for the Lycos Network, which is located at the URL hotbot.lycos.com, etc.

With the arrangement of FIG. 6, channel map 46 associates channel numbers 1-100 with certain television networks or services, whereas channel numbers 101-200 are associated with web sites. If desired, web site channel number assignments may be interspersed within the channel sequence. Moreover, other applications and services may be assigned to channel numbers if desired. For example, a video-on-demand service may be associated with channel number 176, a news service other than an Internet news service may be associated with channel 188, etc.

The channel map information of channel map 46 may be used when a user accesses program listings from a local database on user equipment 12, a database implemented on server 18, or a database implemented on server 28. The channel map information for both the television channel numbers and web site numbers may be created and stored at program guide data source 20 and may be provided to and stored in user equipment 12, server 28, or server 18, or other suitable equipment that is accessible by the interactive television services.

A program guide implemented on a server such as server 28 that is accessed over a communications network such as the Internet may be referred to as an on-line program guide. An on-line program guide or any  
5 other suitable interactive television program guide may use the channel map information to ensure that a given user is able to receive program listings for only the services that are available in the user's local area.

The channel map information may also be used  
10 to ensure that the appropriate services are matched with the appropriate channel numbers when the user is using user equipment 12. For example, when the user is on a channel and the user presses the channel up command, the channel map may be used to determine what  
15 service (e.g., a television service, a web service, etc.) is associated with next channel. The channel map may be used to determine what type of action the user equipment needs to take to provide the service on the next channel to the user. For example, if user  
20 equipment 12 determines that the next channel is associated with a television channel, the television tuning capabilities of user equipment 12 may be used to tune to the appropriate television network broadcast associated with that channel. If user equipment 12  
25 determines that the next channel is associated with a web site, a web browser application or other suitable application may be used to access that web site over the Internet.

Channel maps may be used to define different  
30 service environments for different groups of users. For example, a channel map may be used to define the channel assignments for all cable subscribers located in a certain geographic region that receive service from a given headend. As another example, all

subscribers associated with a particular Internet service provider may use a common channel map. These are merely illustrative examples, channel maps may be associated with any suitable group of users if desired.

5           As the user changes channels with user equipment 12, television channel information and web site information may be displayed on a "flip" bar, as shown in FIG. 7. Video for a television program or web site information or other suitable content may be  
10   displayed on screen 78. Flip bar 80 may be displayed as a bar or other suitable overlay region on top of the other content on screen 78. Flip bar 80 may be displayed as the user changes channels using, for example, up and down channel keys on a remote control.  
15   If desired, the display of the flip bar (or the browse bar described below) may be automatically terminated (e.g., after a few seconds of user inactivity).

          In the example of FIG. 7, screen 78a contains video for television channel 100. This type of  
20   arrangement may be displayed after a user on channel 99 presses a channel up key. Flip bar 80a may be used to display information 82 on the current television channel and the title 84 of the current television program on the current channel. Flip bar 80a may also  
25   be used to display other program listings information 86 for the current channel such as the scheduled time of the program, descriptions of the program, advertisements, etc.

          As shown in the lower portion of FIG. 7, when  
30   the user uses a channel key such as a channel up key to tune to a channel associated with a web site, flip bar 80b may be used to display information 88 on the URL for the web site and an assigned channel number 90. Flip bar 80b may also be used to display other

information 92 related to the web site such as the name of the web site, a description of the web site, advertising, etc.

If desired, the advertisements and other materials that are displayed on flip bar 90 need not be related to the current channel.

Program listings information and web site information may also be displayed on a "browse" bar 94, as shown in FIG. 8a. A browse bar is an example of an overlay that may be displayed as a bar-shaped or otherwise suitably shaped overlay on top of the current screen 96 of user equipment 12 as the user presses up and down arrow keys on a remote control, rather than the up and down channel keys used for the flip function. Unlike flip bar 80, browse bar 94 allows the user to browse channels other than the current channel without changing channels. Browse bar 94 also allows the user to browse for content scheduled for later times.

In the example of FIG. 8a, the user is initially tuned to television channel 100. The video for television channel 100 may be displayed on screen 96a. When the user presses an arrow key, the browse bar 94a may be displayed that contains information associated with channel 100. When the user presses an up arrow key, user equipment 12 changes the browse bar to reflect information on the next adjacent channel. As shown in FIG. 7, for example, browse bar 94b contains information for a web page that is associated with channel 101. The screen content does not change. In particular, the video displayed on screen 96b is the same as the video displayed on screen 96a.

If the user is interested in the web site associated with channel 101, the user may press an OK

key on the remote control. As shown in the lower portion of FIG. 8a, this directs the system to retrieve the web page associated with channel 101. Browse bar 94c may be automatically removed after a moment of user inactivity or using any other suitable technique.

The arrangements of FIGS. 7 and 8a may be used regardless of whether the user is flipping or browsing between television channels, web site channels, or combinations of television channels and web site channels, or any other suitable channels.

If desired, a flip or browse arrangement may be used in which the content of the current screen is reduced in size to accommodate a bar-shaped or L-shaped or otherwise suitably-shaped browse or flip information region, rather than using an overlay arrangement, as shown in FIG. 8b. Content (e.g., video for the current television program, a web site, or a display associated with an interactive television application or the like) may be displayed in region 148. Browse and flip information (e.g., information of the types shown in the browse and flip overlays of FIGS. 7 and 8a) may be displayed in region 150 without overlaying region 148. Information region 152 may be used to display advertisements, logos, additional content descriptions, weather forecasts, etc.

When the browse overlay or region is displayed, the user may browse to later times by pressing the right arrow key. This allows the user to view information on content that is available at a future time. As shown in the upper portion of FIG. 8c, for example, a user who has browsed so that information on a current program listing for channel 101 (e.g., a program listing for a television program on channel 101 that is currently being broadcast) is displayed may

press the right arrow key to be presented with a program listing for a future program on channel 101 (e.g., the next program appearing on channel 101 after the current program). As shown in the lower portion of FIG. 8c, a user who has browsed so that information on current web site content on channel 102 (e.g., information for web site content for channel 102 that is currently available) is displayed may press the right arrow key to be presented with information on web site content that will be available at a future time (e.g., in the next half hour or hour, etc.).

The channel assignments given to the various television channels and web sites may be adjusted. For example, a cable operator may adjust television channels to rearrange the channel lineup. A user may be allowed to control which web pages are assigned to various channel numbers. The program guide or other application may automatically update certain channel assignments.

Steps involved in adjusting the channel assignments are shown in FIG. 9. At step 98, the user, a system operator, or the program guide or other application may be provided with an opportunity to adjust channel assignments. For example, a computer associated with television distribution facility 14 may be used to allow the system operator to choose which television networks and which web sites are to be associated with certain channel numbers. The user may use user equipment 12 to input any desired changes. The user's changes may only affect a local channel map maintained for user equipment 12. If desired, the user may only be allowed to change the channel numbers associated with web sites, not channel numbers associated with television channels. The system

operator's changes may affect all users that receive services from the operator. The program guide's changes may result from the user's interactions with the program guide or any other suitable source.

5 Channel assignments may be changed dynamically if desired. For example, the program guide (or user or operator) may dynamically create a web site channel for election results. Once the election is over, the channel assignment may be reused.

10 Cable-operator-assigned web site channels and other web site channels may carry a variety of information including advertising. As shown in FIG. 10, for example, advertisements such as advertisement 101 may be provided on the user's display screen 103  
15 simultaneously with television and web content such as web content 105. Advertisement 101 may be provided as an overlay on top of the television or web content, or the television or web content may be stretched or otherwise reformatted to fit the space not occupied by  
20 advertisement 101. More than one advertisement may be displayed at a time and advertisements may be displayed in any suitable shape.

If desired, web site links may be displayed on listing screens and menus within a program guide and  
25 may be accessed from guide screens. This is shown in FIG. 11. Screen 104 contains a grid 106 of television program listings and web site listings. Time information may be associated with the television listings and web listings so that the television and  
30 web listings may be organized by their scheduled time of availability (e.g., by television broadcast time or web content availability time). Channel number information may also be provided.

A user may select a desired listing by clicking on that listing with a pointing device or by highlighting the region with a highlight region such as highlight region 108 and pressing an OK key.

5           A remote control "information" key may be used to retrieve information associated with a highlighted television channel listing or web site listing. For example, as shown in FIG. 11, when the user presses an info key when a web site is  
10 highlighted, user equipment 12 may display a screen such as screen 110 that contains an information region 112. Information region 112 may contain information 114 associated with the web site, and various options such as options 116, 118, 120, and 122. If desired,  
15 information and options may also be displayed when an information button is pressed while the user is on other program guide screens or is using a flip or browse bar or other such arrangement.

Web site channels may be color coded or  
20 otherwise visually differentiated to indicate that they are web site channels and not television channels. For example, the listings for web site channels may be colored in red and the listings for television channels may be colored in blue, as shown in screen 104 of FIG.  
25 11. Other listings (e.g., listings associated with applications such as e-mail applications, stock trading and news applications, video-on-demand applications, and e-commerce applications may also be colored in different colors). Such visual differentiation may be  
30 used on any suitable program listings screen provided by an interactive television program guide, may be used on a flip bar or a browse bar, or may be used in any other screen provided by an interactive television application.



Options such as option 116 may be used to allow users to set reminders for events on web site channels. For example, users may be provided with opportunities to set reminders for scheduled events such as chat sessions, interviews, webcasts, etc. If desired, the reminder may be provided to the user in the form of a pop-up overlay that is displayed on top of the current television program or other content being displayed on the user's monitor at the time of the event or shortly before the event. As shown in FIG. 12, for example, a reminder such as reminder 124 may be automatically displayed on top of the video 126 for the current television channel. The reminder may also be provided in the form of e-mail, a paging message, etc.

Reminders such as reminder 126 may contain information on the upcoming event for which the reminder was set. In the example of FIG. 12, reminder 124 is associated with the chat session described in information region 112 of FIG. 11 for which a reminder was set by selecting option 116 of FIG. 11. Reminders may also contain options such as options 126 and 128. If the user selects an option such as option 126, the user equipment 12 may take the user directly to the service for which the reminder was set (e.g., the appropriate web site such as web site 130 or a television channel, etc.). If the user selects option 128, the reminder messages may be removed.

The user may be allowed to set certain television channels and web site channels as favorites. The user may then easily access these channels by pressing a remote control favorites key or by accessing a program guide favorites menu or the like.

Illustrative steps involved in providing favorites features to the user are shown in FIG. 13. At step 132, the user may be provided with an opportunity to choose certain television channels and web site channels as favorites. For example, the user may be provided with options such as option 118 of FIG. 11 on program guide screens or the screens of other interactive television applications that allow the user to select the favorite channels. The user may also press a fav key on a remote control when a particular television channel or web site channel is being displayed to the user or is being highlighted in a list or grid to designate that channel as a favorite. By designating certain channels as favorites, the user may establish a favorite channel tuning sequence.

At step 134, the user may be provided with an opportunity to select a desired favorites mode to be used when navigating television channels and web site channels after at least some of the favorite channels have been established. In particular, the user may be provided with an opportunity to select between an unconstrained mode and a constrained mode. If the user selects the unconstrained mode, the user may be allowed to navigate through both television channels and web site channels using the fav key or other suitable arrangements at step 136. If the user selects the constrained mode, the user may be allowed to navigate through only web sites using the fav key or other suitable arrangements at step 138.

An example of operation in an unconstrained mode is shown in FIG. 14. Initially, the user is watching television. Video for the current television channel is displayed on screen 140. The current television channel may or may not be a favorite

channel. When the user presses the remote control fav key, the next favorite channel in the favorite channel sequence may be presented on the user equipment 12. In the example of FIG. 14, the next favorite channel is a web site channel on channel 106 that is displayed on screen 142.

If desired, the system may automatically detect the type of content on the current channel (e.g., web or television). The system may then advance the user to the next favorite channel of that type when the user presses the fav key. In this type of arrangement, the system essentially always operates in a constrained mode.

Another way of navigating favorite channels is by displaying a list of such channels in an interactive television application such as the program guide. When the user selects a desired channel from the list, the user equipment 12 may present the content associated with the selected channel to the user.

The fav key may also be used for navigation while flipping, while browsing, while viewing listings, or while using any other suitable interactive television feature. In any of these modes, all channels may be available using up and down arrow keys or using the fav key to move to the next favorite channel. If desired, the type of channel that is selected may be constrained (e.g., to just TV channels or just web channels).

If desired, the user may set parental controls that block all or some of the available television channels and web sites. The user may, for example, desire to lock a web site channel based on its rating. Web site channels may be rated using web content rating schemes, television ratings, or MPAA

(movie) ratings. The user may access parental control functions by, for example, selecting an option such as option 120 of FIG. 11. The user may also lock programs by pressing a lock button on the remote control. The  
5 user may also select locking criteria from any other suitable screen (e.g., a parental control criteria screen).

Regardless of the way in which a web site or television channel is locked, subsequent viewers may be  
10 prevented from accessing the locked channel if they cannot provide a personal identification code or the like. An illustrative screen 144 with a blocked channel message 146 that user television equipment 12 may display for a viewer when the viewer changes or  
15 tunes the channel to a blocked channel is shown in FIG. 15.

Options such as option 122 of FIG. 11 may be used to hyperlink the user to another web page, to another television channel, or to another feature or  
20 application to allow the user to order a product related to the web page, television channel, feature, or application, to allow the user to send an e-mail, or any other suitable function.

Although the invention has been described  
25 primarily in connection with assigning web sites to channels, this is merely illustrative. Other interactive features and applications may be assigned to channels if desired. For example, channel numbers may be assigned to applications such as e-mail  
30 applications, stock tracking applications, video-on-demand applications, e-commerce applications, etc. The channel numbers may be assigned to the applications themselves or may be assigned to particular content within the applications.

The user may browse and flip through such channel numbers and may set desired channel numbers as favorites. As shown in FIG. 16, for example, each time the user presses the up arrow key, the system may  
5 present another browse bar overlay on top of the current video. The channel number and the description of the corresponding content or application may be displayed on the browse bar. In the example of FIG. 16, a program listing is displayed on the browse bar  
10 for channel 100, a web site listing is displayed on the browse bar for channel 101, an e-mail application is listed on the browse bar for channel 102, a financial application is displayed on the browse bar for channel 103, and a shopping application is displayed on the  
15 browse bar for channel 104. These are merely illustrative examples. Any suitable content and applications may be associated with the channel numbers if desired.

The foregoing is merely illustrative of the  
20 principles of this invention and various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention.

What is Claimed is:

1. A method for organizing television program listings and web site listings for a user of an interactive application that is implemented using user equipment, comprising:

displaying a screen on the user equipment containing a list of certain television channel numbers and corresponding program listings; and simultaneously displaying in the same list information on certain web site channel numbers and corresponding web site information.

2. The method defined in claim 1 further comprising displaying the television channel numbers and web site channel numbers in a column on the screen.

3. The method defined in claim 1 further comprising:

displaying the television channel numbers and web site channel numbers in a column on the screen; and

displaying the corresponding program listings adjacent to the television channels numbers.

4. The method defined in claim 1 further comprising:

displaying the television channel numbers and web site channel numbers in a column on the screen; and

displaying the corresponding web site information adjacent to the web site channel numbers.

5. The method defined in claim 1 further comprising:

displaying the television channel numbers and web site channel numbers in a column on the screen;

displaying the corresponding program listings adjacent to the television channels numbers; and

displaying the corresponding web site information adjacent to the web site channel numbers.

6. The method defined in claim 1 further comprising providing the user with an opportunity to highlight one of the program listings.

7. The method defined in claim 1 further comprising providing the user with an opportunity to highlight the information corresponding to one of the web site channel numbers.

8. The method defined in claim 1 further comprising using the user equipment to provide the user with an opportunity to obtain additional information for at least one of the program listings.

9. The method defined in claim 1 further comprising using the user equipment to provide the user with an opportunity to obtain additional information associated with at least one of the web site channel numbers.

10. The method defined in claim 1 further comprising:

providing the user with an opportunity to highlight one of the program listings; and

using the user equipment to provide the user with an opportunity to obtain additional information for the highlighted program listing.

11. The method defined in claim 1 further comprising:

providing the user with an opportunity to highlight the information corresponding to one of the web site channel numbers; and

using the user equipment to provide the user with an opportunity to obtain additional information associated with the highlighted information corresponding to one of the web site channel numbers.

12. The method defined in claim 1 further comprising:

providing the user with an opportunity to highlight the information corresponding to a given one of the web site channel numbers; and

using the user equipment to provide the user with an opportunity to obtain additional information associated with the highlighted information corresponding to the given one of the web site channel numbers, wherein the additional information is related to scheduled web site content.

13. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the web site channel numbers;

displaying the additional information;  
and



displaying at least one option at the same time that the additional information is displayed.

14. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the television channel numbers;

displaying the additional information;

and

displaying a reminder option at the same time that the additional information is displayed.

15. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the television channel numbers;

displaying the additional information;

and

displaying a favorites option at the same time that the additional information is displayed.

16. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the television channel numbers;

displaying the additional information;

and

displaying a lock option at the same time that the additional information is displayed.

17. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the web site channel numbers;

displaying the additional information;

and

displaying a reminder option at the same time that the additional information is displayed.

18. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the web site channel numbers;

displaying the additional information;

and

displaying a favorites option at the same time that the additional information is displayed.

19. The method defined in claim 1 further comprising:

providing the user with an opportunity to obtain additional information related to one of the web site channel numbers;

displaying the additional information;

and

displaying a lock option at the same time that the additional information is displayed.

20. The method defined in claim 1 further comprising providing the user with an opportunity to set a reminder related to the web site channel number.

21. The method defined in claim 1 further comprising providing the user with an opportunity to establish at least one of the web site channels as a favorite channel.

22. The method defined in claim 1 further comprising providing the user with an opportunity to lock the web site channel number.

23. The method defined in claim 1 further comprising receiving program listings information from a program guide data source over the Internet.

24. The method defined in claim 1 further comprising receiving program listings information through a television distribution facility.

25. The method defined in claim 1 further comprising receiving program listings information through a cable system headend.

26. The method defined in claim 1 further comprising receiving program listings information through a satellite television distribution facility.

27. The method defined in claim 1 further comprising receiving program listings information through a broadcast television distribution facility.

28. The method defined in claim 1 further comprising receiving the information on the web site channel numbers and the corresponding web site information through a television distribution facility.

29. The method defined in claim 1 further comprising receiving the information on the web site channel numbers and the corresponding web site information through a cable system headend.

30. The method defined in claim 1 further comprising receiving the information on the web site channel numbers and the corresponding web site information through a satellite television distribution facility.

31. The method defined in claim 1 further comprising receiving the information on the web site channel numbers and the corresponding web site information through a broadcast television distribution facility.

32. The method defined in claim 1 further comprising using the user equipment to receive channel map information for the web site channel numbers over the Internet.

33. The method defined in claim 1 further comprising using the user equipment to receive channel map information for the web site channel numbers from a program guide data source over the Internet.

34. The method defined in claim 1 further comprising storing channel map information for the web site channel numbers at a television distribution facility.

35. The method defined in claim 1 further comprising storing channel map information for the web

site channel numbers on a server connected to the Internet.

36. The method defined in claim 1 further comprising storing channel map information for the web site channel numbers on the user equipment.

37. The method defined in claim 1 further comprising storing channel map information for the web site channel numbers at a program guide data source.

38. The method defined in claim 1 further comprising using a set-top box to display the screen for the user on a television.

39. The method defined in claim 1 further comprising using a digital video recorder to display the screen for the user on a television.

40. The method defined in claim 1 further comprising using a personal computer to display the screen for the user on a monitor.

41. The method defined in claim 1 further comprising allowing the user to use the user equipment to change the channel from one of the television channel numbers to one of the web site channel numbers.

42. The method defined in claim 1 further comprising allowing the user to use the user equipment to change the channel from one of the television channel numbers to one of the web site channel numbers with a remote control.

43. The method defined in claim 1 further comprising allowing the user to use the user equipment to change the channel from one of the television channel numbers to one of the web site channel numbers with a channel key on a remote control.

44. The method defined in claim 1 further comprising allowing the user to use the user equipment to change the channel from one of the web site channel numbers to one of the television channel numbers with a channel key on a remote control.

45. The method defined in claim 1 further comprising:

displaying a screen containing video for a television program on a current television channel on the user equipment; and

displaying an overlay on top of the video that contains information identifying the current television channel.

46. The method defined in claim 1 further comprising:

displaying a screen containing video for one of the television channel numbers on the user equipment; and

displaying an overlay on top of the video that contains web site information identifying one of the web site channel numbers.

47. The method defined in claim 1 further comprising:

displaying a screen containing a web site for a current web site channel number on the user equipment; and

displaying an overlay on top of the web site that contains information identifying the current web site channel number.

48. The method defined in claim 1 further comprising:

displaying a screen containing a web site for one of the web site channel numbers on the user equipment; and

displaying an overlay on top of the web site that contains information identifying one of the television channel numbers.

49. The method defined in claim 1 further comprising displaying a flip overlay on top of video displayed on the user equipment.

50. The method defined in claim 1 further comprising displaying a browse overlay on top of video displayed on the user equipment.

51. The method defined in claim 1 further comprising displaying a flip overlay on top of a web site displayed on the user equipment.

52. The method defined in claim 1 further comprising displaying a browse overlay on top of a web site displayed on the user equipment.

53. The method defined in claim 1 further comprising displaying a browse overlay on top of a web

site displayed on the user equipment and displaying channel number information in the browse display.

54. The method defined in claim 1 further comprising receiving web site channel number information through a television distribution facility.

55. The method defined in claim 1 further comprising receiving information on the web sites associated with the web site channel numbers through a television distribution facility.

56. The method defined in claim 1 further comprising providing the user with an opportunity to adjust channel assignments with the user television equipment.

57. The method defined in claim 1 further comprising providing a system operator at a television distribution facility with the ability to adjust channel assignments in the channel map.

58. The method defined in claim 1 further comprising using an interactive television program guide to adjust channel assignments in the channel map.

59. The method defined in claim 1 further comprising receiving web site channel number information through a broadcast television distribution facility.

60. The method defined in claim 1 wherein the web site information that is displayed includes



information identifying a URL associated with each web site channel number.

61. The method defined in claim 1 wherein the web site information that is displayed includes a web site name associated with each web site channel number.

62. The method defined in claim 1 wherein the web site information that is displayed includes information identifying a URL associated with each web site channel number and wherein the web site information that is displayed includes a web site name associated with each web site channel number.

63. The method defined in claim 1 wherein the user equipment is user television equipment.

64. The method defined in claim 1 further comprising displaying information on an e-mail application in the list.

65. The method defined in claim 1 further comprising displaying information on a video-on-demand application in the list.

66. The method defined in claim 1 wherein the program listings and the information on the web sites is displayed simultaneously on the same screen on the user equipment.

67. The method defined in claim 1 further comprising color-coding the program listings and the information on web sites in different colors.

68. The method defined in claim 1 further comprising providing an opportunity to obtain additional information on a selected one of the web sites using a remote control information key.

69. A method for displaying web sites for a user at user equipment having a display comprising:  
displaying video for a television channel on the display; and  
allowing the user to use a remote control to change channels on the user equipment; and  
displaying one of the web sites on the display when the user changes channels.

70. The method defined in claim 69 wherein the remote control has channel up and down keys, the method further comprising allowing the user to use the channel up and down keys to change the channel; and  
displaying the web site on the display screen in place of the video for the television channel when the user uses the channel up or down key.

71. The method defined in claim 69 further comprising allowing the user to change channels between a plurality of television channel numbers with the remote control.

72. The method defined in claim 69 wherein the user equipment is user television equipment.

73. The method defined in claim 69 further comprising displaying television channel numbers and web site channel numbers on the display.

74. The method defined in claim 69 further comprising:

displaying television channel numbers and web site channel numbers in a column on the display; and

displaying corresponding program listings adjacent to the television channels numbers.

75. The method defined in claim 69 further comprising:

displaying television channel numbers and web site channel numbers in a column on the display; and

displaying corresponding web site information adjacent to the web site channel numbers.

76. The method defined in claim 69 further comprising:

displaying television channel numbers and web site channel numbers on the display;

displaying corresponding program listings adjacent to the television channels numbers; and

displaying corresponding web site information adjacent to the web site channel numbers.

77. The method defined in claim 69 further comprising:

displaying program listings on the display; and

providing the user with an opportunity to highlight one of the program listings.

78. The method defined in claim 69 further comprising:

displaying information related to a plurality of web site channel numbers on the display; and

providing the user with an opportunity to highlight information corresponding to at least one of the web site channel numbers.

79. The method defined in claim 69 further comprising:

displaying program listings on the display; and

using the user equipment to provide the user with an opportunity to obtain additional information for at least one of the program listings.

80. The method defined in claim 69 further comprising:

displaying information associated with web site channel numbers on the display; and

using the user equipment to provide the user with an opportunity to obtain additional information associated with at least one of the web site channel numbers.

81. The method defined in claim 69 further comprising:

providing the user with an opportunity to highlight a program listing; and

using the user equipment to provide the user with an opportunity to obtain additional information for the highlighted program listing.

82. The method defined in claim 69 further comprising:

providing the user with an opportunity to highlight information corresponding to a web site channel number; and

using the user equipment to provide the user with an opportunity to obtain additional information associated with the highlighted information corresponding to the web site channel number.

83. The method defined in claim 69 further comprising:

providing the user with an opportunity to obtain additional information related to a web site channel number;

displaying the additional information;

and

displaying at least one option at the same time that the additional information is displayed.

84. The method defined in claim 69 further comprising:

providing the user with an opportunity to obtain additional information related to a web site;

displaying the additional information;

and

displaying a reminder option at the same time that the additional information is displayed.

85. The method defined in claim 69 further comprising:

providing the user with an opportunity to obtain additional information related to a web site;

displaying the additional information;  
and  
displaying a favorites option at the  
same time that the additional information is displayed.

86. The method defined in claim 69 further  
comprising:  
    providing the user with an opportunity  
to obtain additional information related to a web site;  
    displaying the additional information;  
and  
    displaying a lock option at the same  
time that the additional information is displayed.

87. The method defined in claim 69 further  
comprising:  
    providing the user with an opportunity  
to obtain additional information related to a  
television channel;  
    displaying the additional information;  
and  
    displaying a reminder option at the same  
time that the additional information is displayed.

88. The method defined in claim 69 further  
comprising:  
    providing the user with an opportunity  
to obtain additional information related to a  
television channel;  
    displaying the additional information;  
and  
    displaying a favorites option at the  
same time that the additional information is displayed.

89. The method defined in claim 69 further comprising:

providing the user with an opportunity to obtain additional information related to a television channel;

displaying the additional information;

and

displaying a lock option at the same time that the additional information is displayed.

90. The method defined in claim 69 further comprising providing the user with an opportunity to set a reminder related to a web site.

91. The method defined in claim 69 further comprising:

assigning web sites and television channels to channel numbers; and

providing the user with an opportunity to establish at least one of the web site channel numbers as a favorite channel.

92. The method defined in claim 69 further comprising:

assigning web sites and television channels to channel numbers; and

providing the user with an opportunity to lock one of the web site channel numbers.

93. The method defined in claim 69 further comprising receiving program listings information from a program guide data source over the Internet.

94. The method defined in claim 69 further comprising receiving program listings information through a television distribution facility.

95. The method defined in claim 69 further comprising receiving program listings information through a cable system headend.

96. The method defined in claim 69 further comprising receiving program listings information through a satellite television distribution facility.

97. The method defined in claim 69 further comprising receiving program listings information through a broadcast television distribution facility.

98. The method defined in claim 69 further comprising receiving information on web site channel numbers and corresponding web site information through a television distribution facility.

99. The method defined in claim 69 further comprising receiving the information on web site channel numbers and corresponding web site information through a cable system headend.

100. The method defined in claim 69 further comprising receiving information on web site channel numbers and corresponding web site information through a satellite television distribution facility.

101. The method defined in claim 69 further comprising receiving information on web site channel



numbers and corresponding web site information through a broadcast television distribution facility.

102. The method defined in claim 69 further comprising using the user equipment to receive channel map information for web site channel numbers over the Internet.

103. The method defined in claim 69 further comprising using user equipment to receive channel map information for a web site channel number from a program guide data source over the Internet.

104. The method defined in claim 69 further comprising storing channel map information for web site channel numbers at a television distribution facility.

105. The method defined in claim 69 further comprising storing channel map information for web site channel numbers on a server connected to the Internet.

106. The method defined in claim 69 further comprising storing channel map information for web site channel numbers on the user equipment.

107. The method defined in claim 69 further comprising storing channel map information for web site channel numbers at a program guide data source.

108. The method defined in claim 69 further comprising using a set-top box to display information for the user on a television.

109. The method defined in claim 69 further comprising using a digital video recorder to display information for the user on a television.

110. The method defined in claim 69 further comprising using a personal computer to display information for the user on a monitor.

111. The method defined in claim 69 further comprising:

assigning television channel numbers to a plurality of channels on which television programs are provided with the user equipment;

assigning web site channel numbers to a plurality of channels on which web sites are provided with the user equipment; and

allowing the user to use the user equipment to change the channel from one of the television channel numbers to one of the web site channel numbers.

112. The method defined in claim 69 further comprising displaying a grid of television program listings and web site listings with an interactive television program guide.

113. The method defined in claim 69 further comprising allowing the user to use the user equipment to change channels from a television channel to a web site channel with a channel key on a remote control.

114. The method defined in claim 69 wherein the user equipment is user television equipment, the method further comprising allowing the user to use the

user television equipment to change the channel from a television channel number to a web site channel number with a channel key on a remote control.

115. The method defined in claim 69 further comprising displaying an overlay on top of the video that contains information identifying the television channel.

116. The method defined in claim 69 further comprising displaying an overlay on top of the video site that contains web site information identifying a web site channel number.

117. The method defined in claim 69 further comprising displaying an overlay on top of the web site that contains information identifying a current web site channel number corresponding to the web site.

118. The method defined in claim 69 further comprising displaying an overlay on top of the web site that contains information identifying a television channel number.

119. The method defined in claim 69 further comprising displaying a flip overlay on top of the video displayed on the user equipment.

120. The method defined in claim 69 further comprising displaying a browse overlay on top of the video displayed on the user equipment.

121. The method defined in claim 69 further comprising displaying a flap overlay on top of the web site displayed on the user equipment.

122. The method defined in claim 69 further comprising displaying a browse overlay on top of the web site displayed on the user equipment.

123. The method defined in claim 69 further comprising:

displaying a browse overlay on top of a web site displayed on the user equipment; and  
displaying a channel number in the browse overlay.

124. The method defined in claim 69 further comprising receiving web site channel number information at the user equipment through a television distribution facility.

125. The method defined in claim 69 further comprising receiving information at the user equipment on web sites and associated web site channel numbers through a television distribution facility.

126. The method defined in claim 69 further comprising providing the user with an opportunity to adjust channel assignments with the user television equipment.

127. The method defined in claim 69 further comprising allowing a system operator at a television distribution facility to adjust channel assignments in a channel map.

128. The method defined in claim 69 further comprising using an interactive television program guide to adjust channel assignments in a channel map.

129. The method defined in claim 69 further comprising receiving web site channel number information through a broadcast television distribution facility.

130. The method defined in claim 69 further comprising displaying a screen on the display that includes information identifying a plurality of URLs associated with a plurality of corresponding web site channels.

131. The method defined in claim 69 further comprising displaying a screen on the display that includes information identifying a plurality of web site names associated with a plurality of corresponding web site channels.

132. The method defined in claim 69 further comprising displaying a screen of web site information identifying a plurality of URLs associated with a plurality of corresponding web site channel numbers, wherein the web site information that is displayed includes a web site name associated with each web site channel number.

133. The method defined in claim 69 further comprising displaying information on an e-mail application on the display when the user changes channels.

134. The method defined in claim 69 further comprising displaying information on a video-on-demand application on the display when the user changes channels.

135. The method defined in claim 69 wherein program listings and information on the web sites are displayed simultaneously on the same screen on the user equipment.

136. The method defined in claim 69 further comprising color-coding program listings and the information on web sites in different colors.

137. The method defined in claim 69 further comprising providing an opportunity to obtain additional information on a selected one of the web sites using a remote control information key.

138. The method defined in claim 69 further comprising displaying a browse region on the display.

139. The method defined in claim 69 further comprising displaying a browse region on the display with one of the web sites.

140. The method defined in claim 69 further comprising displaying a browse region on the display as an overlay on top of one of the web sites.

141. The method defined in claim 69 further comprising:

displaying a browse region on the display with a given one of the web sites; and

updating the browse region to display a listing of upcoming content for the given web site when the user presses a remote control right arrow key.

142. The method defined in claim 69 further comprising:

displaying a browse region on the display with a given one of the web sites; and  
allowing the user to browse to a future time slot while the given one of the web sites is displayed.

143. The method defined in claim 69 further comprising simultaneously displaying a browse region on the display that contains television program listings information and displaying one of the web sites.

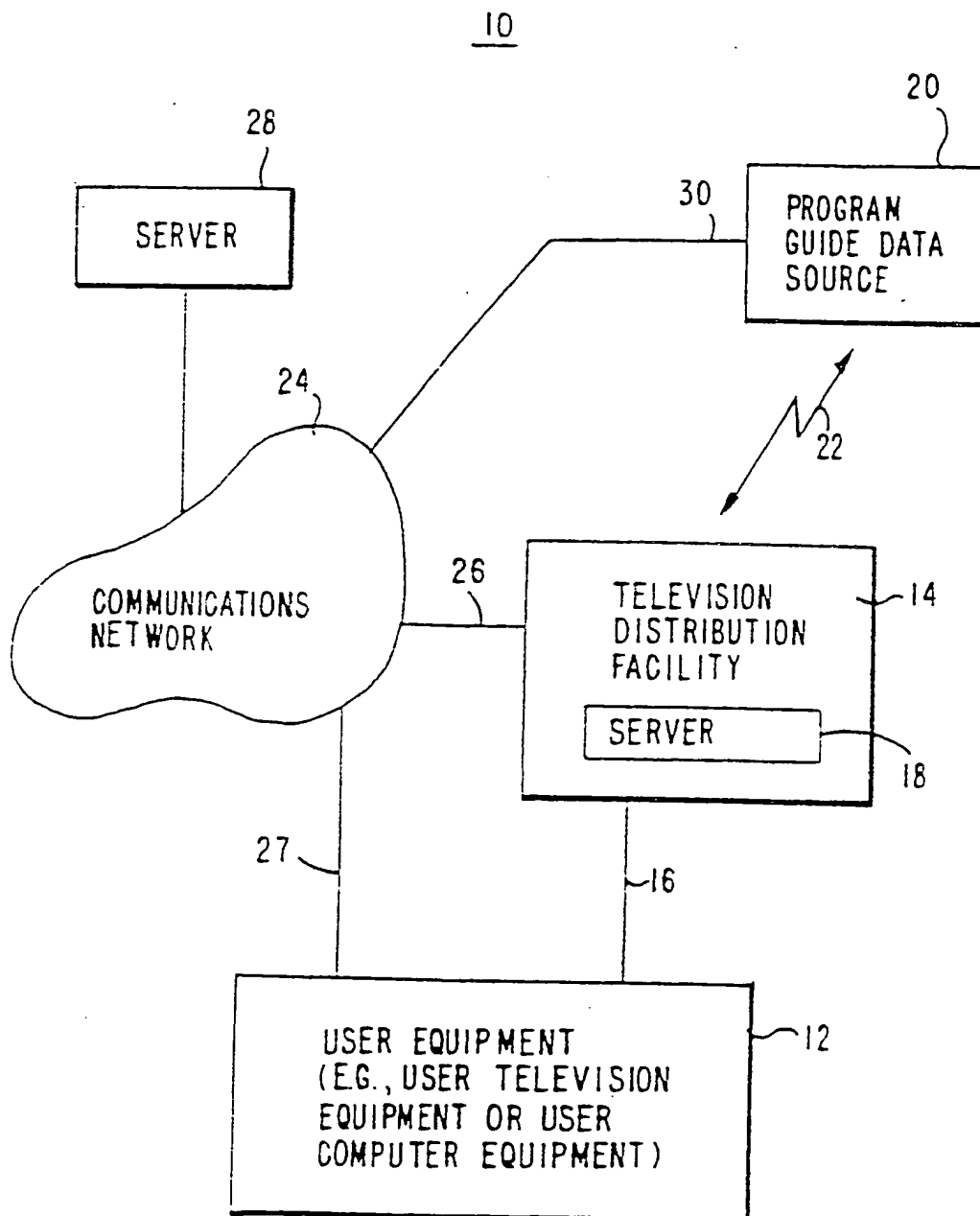
144. A method for maintaining a channel map for use in an interactive television program guide system comprising:

storing information on a plurality of television channel numbers and associated television services in the channel map; and

storing information on a plurality of web site channel numbers and associated web sites in the channel map.

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FIG. 1





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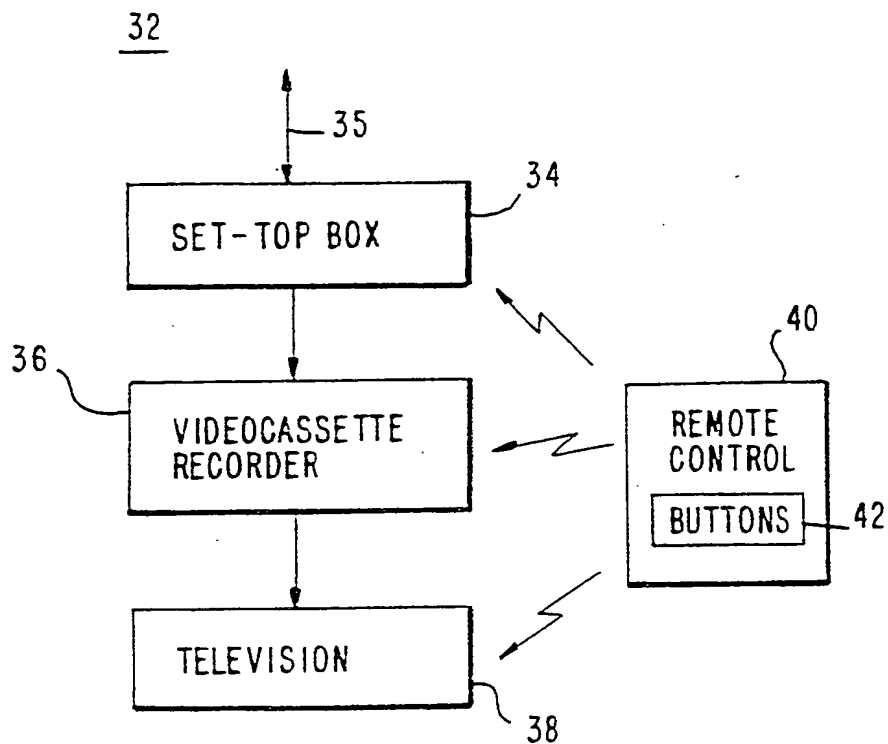
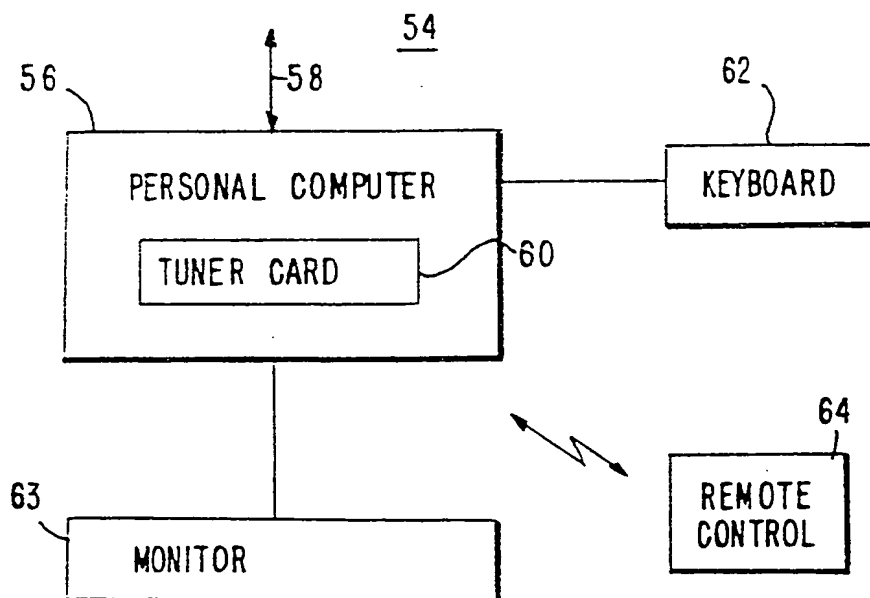
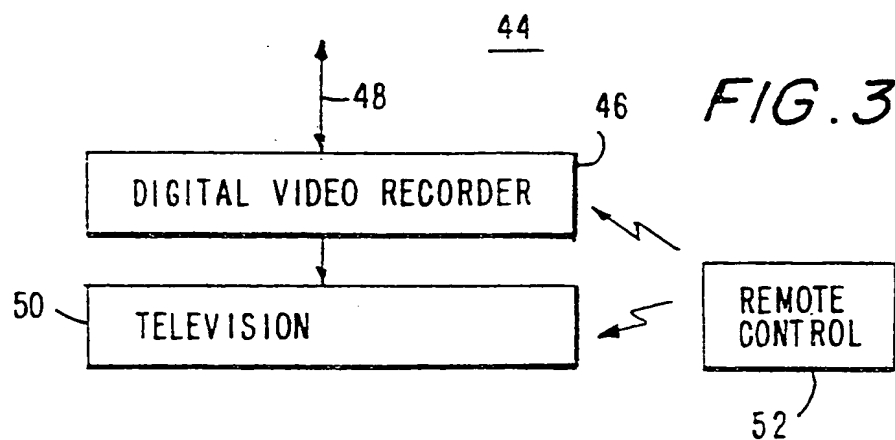
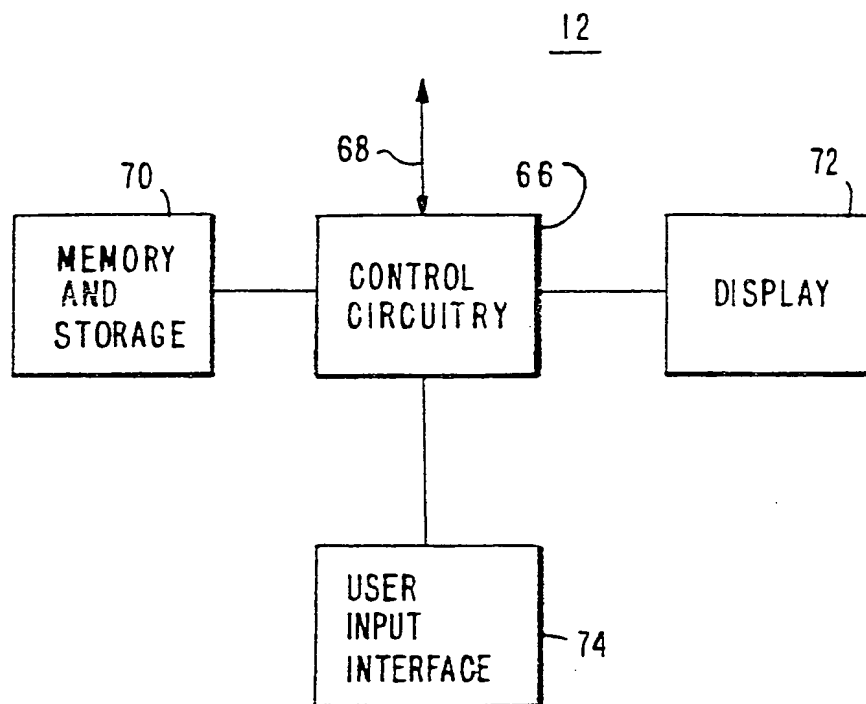


FIG. 2

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*FIG. 5*

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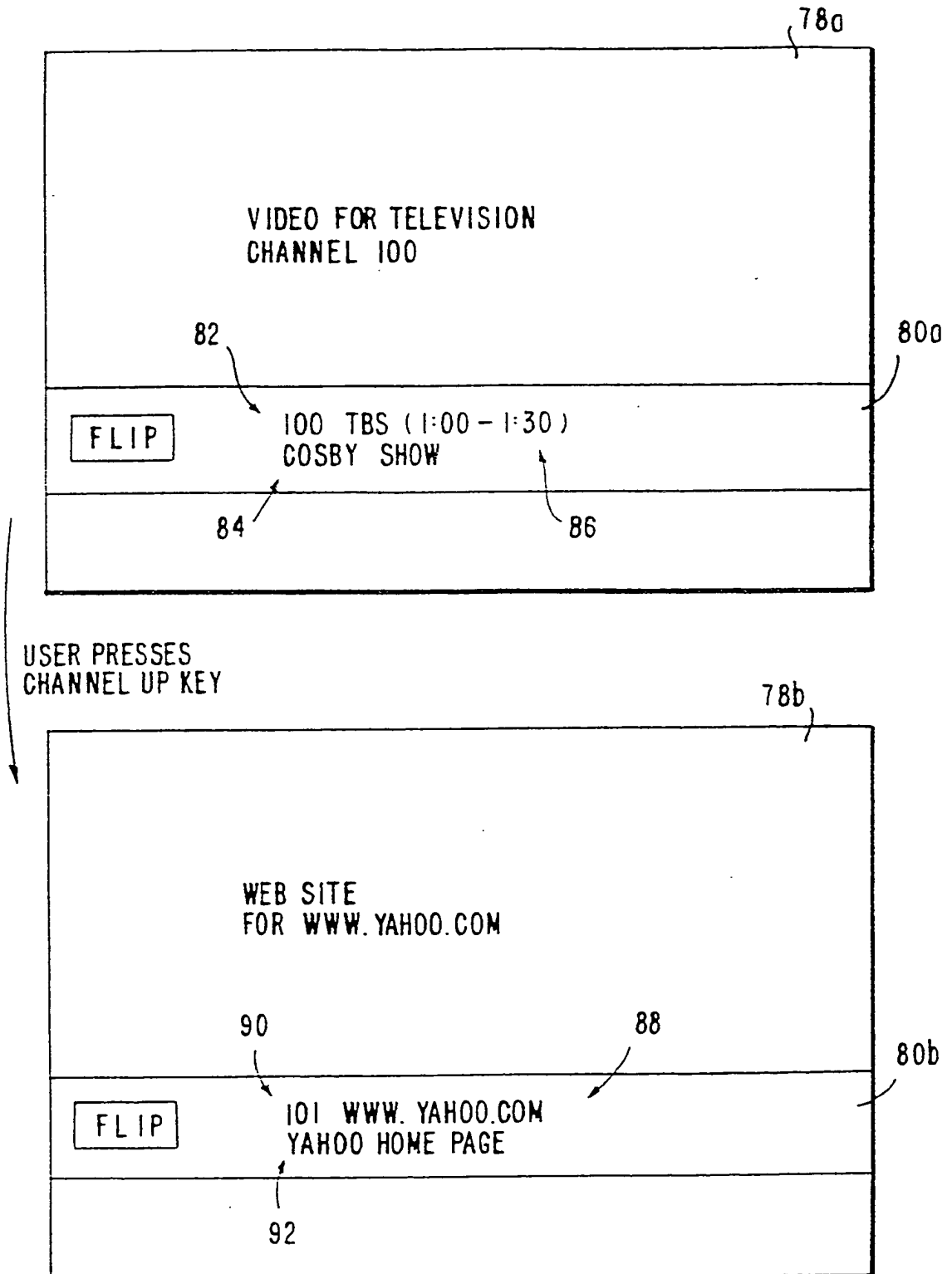
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CHANNEL MAP	
CHANNEL NUMBER	TELEVISION SERVICE OR URL
1	TVN
2	CBS
3	RNN
4	NBC
.	.
.	.
.	.
100	TBS
101	WWW.YAHOO.COM (YAHOO HOME PAGE)
102	HOTBOT.LYCOS.COM (THE LYCOS NETWORK)
103	WWW.EXCITE.COM (EXITE)
104	TVGUIDE.COM (TV GUIDE)
.	.
.	.
.	.
200	WWW.AOL.COM (AOL)

FIG. 6

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FIG. 7



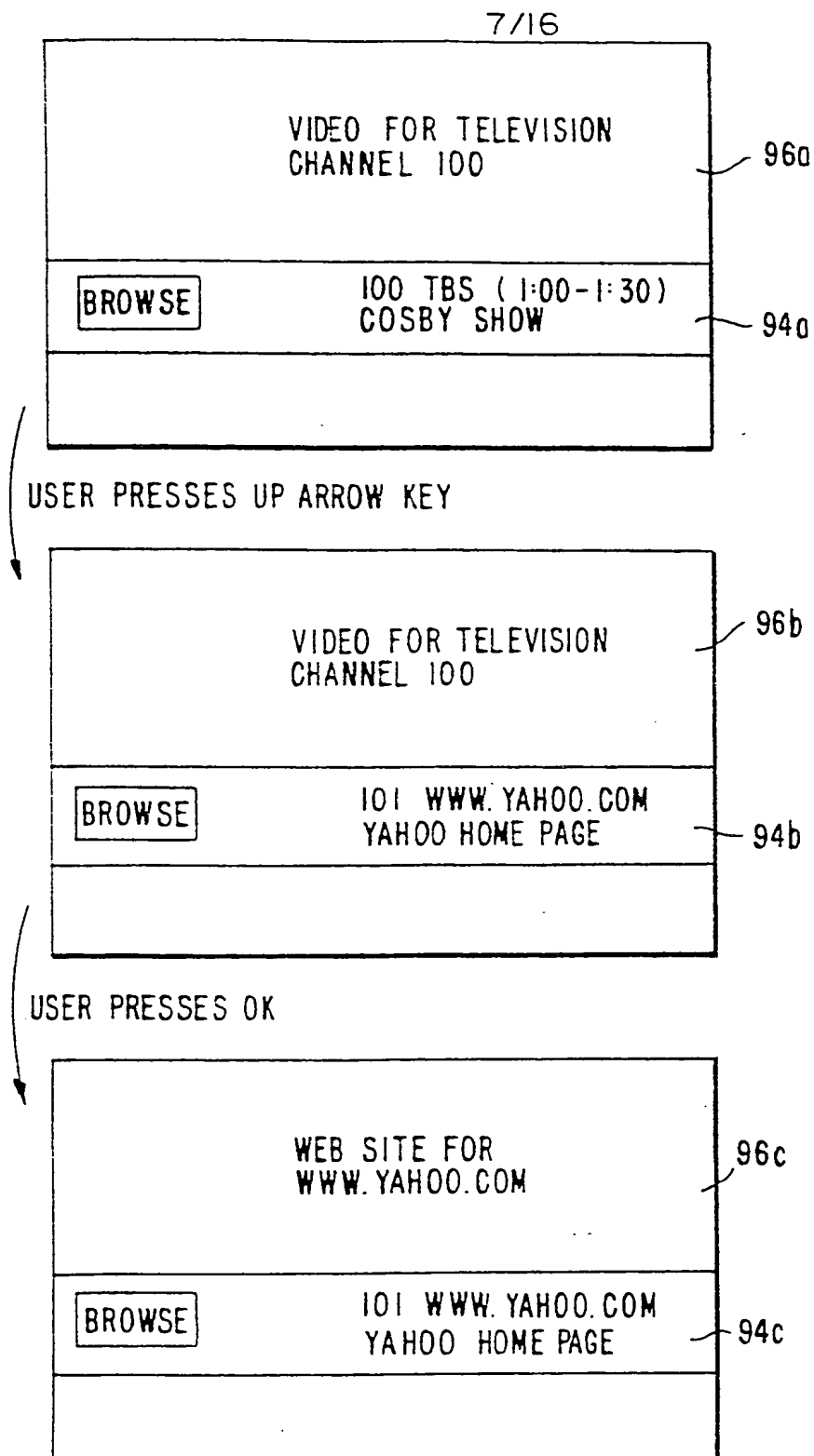
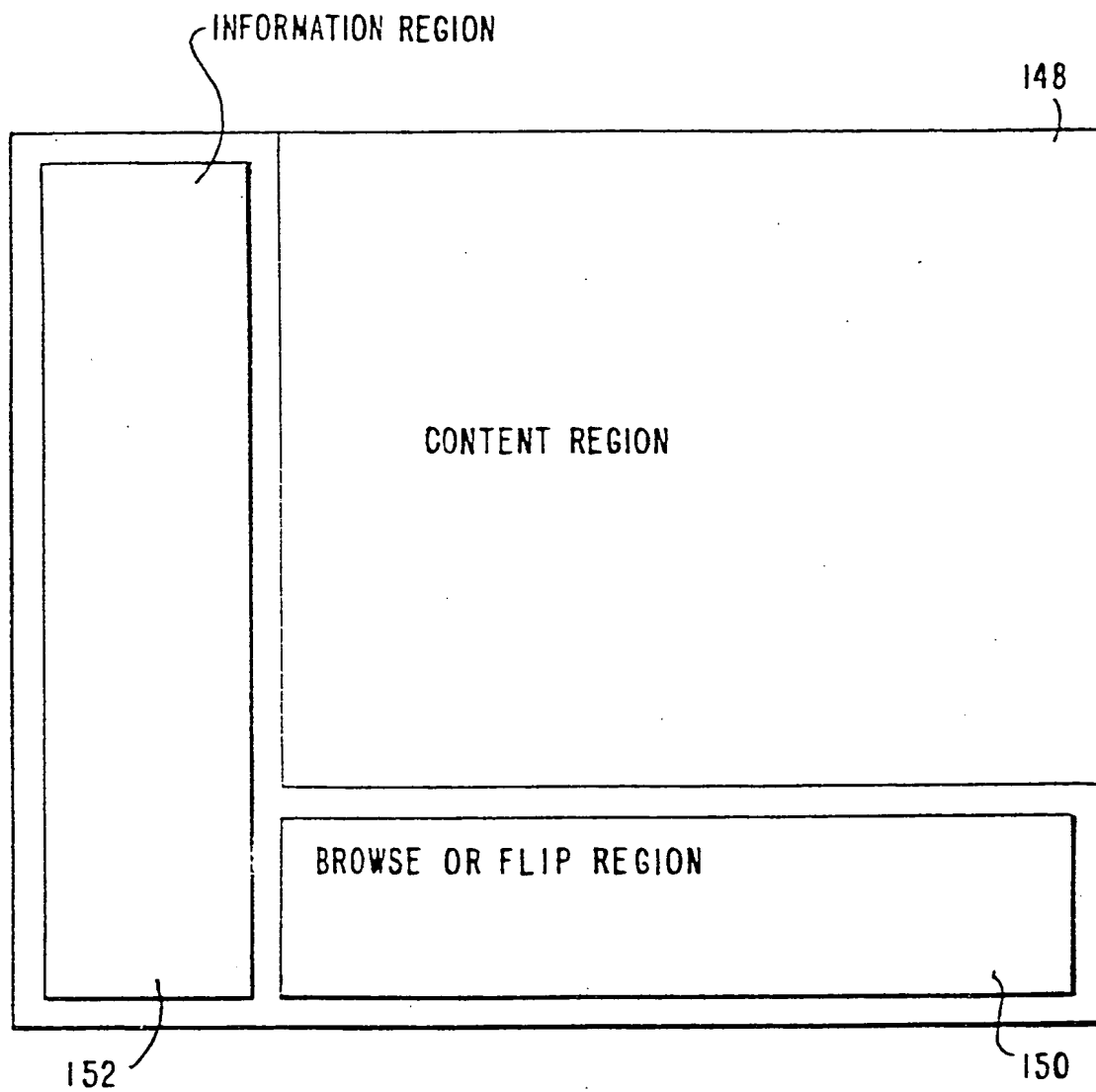


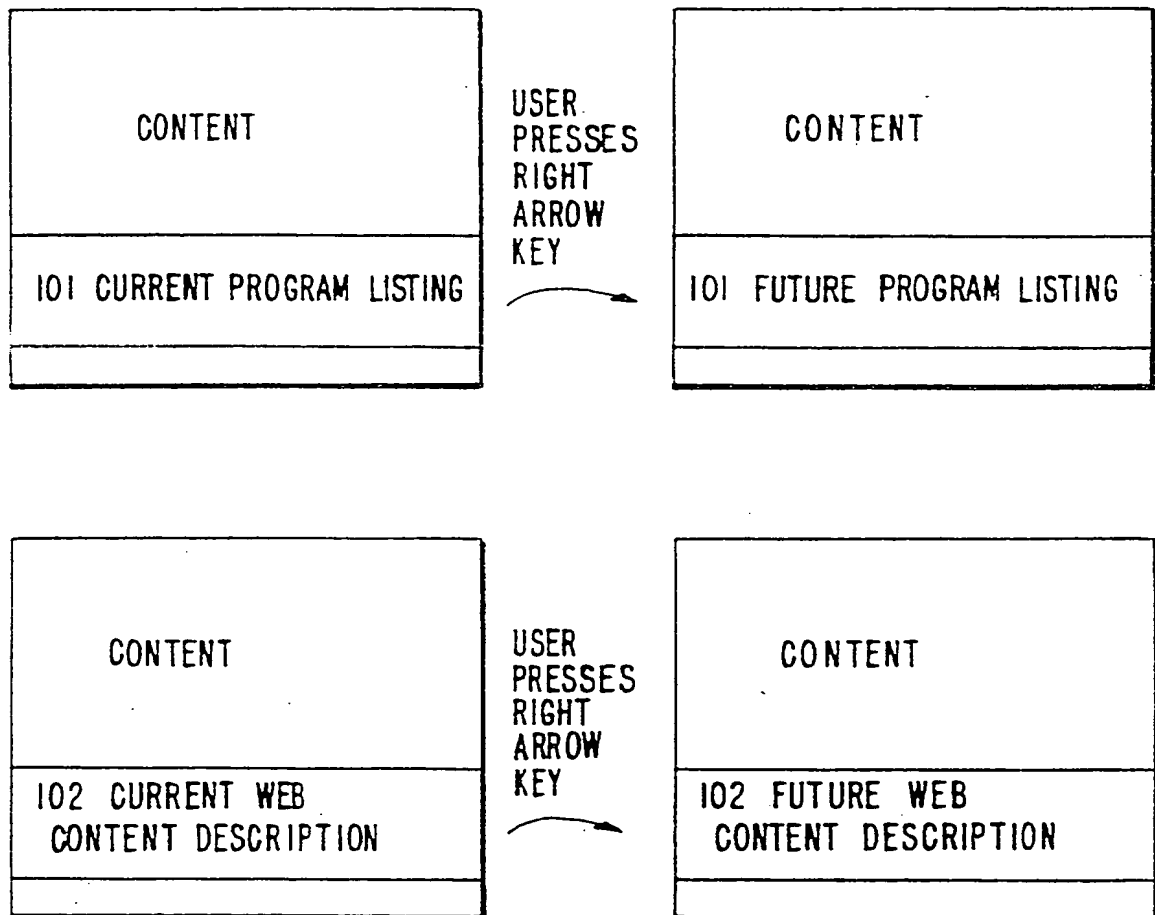
FIG. 8a

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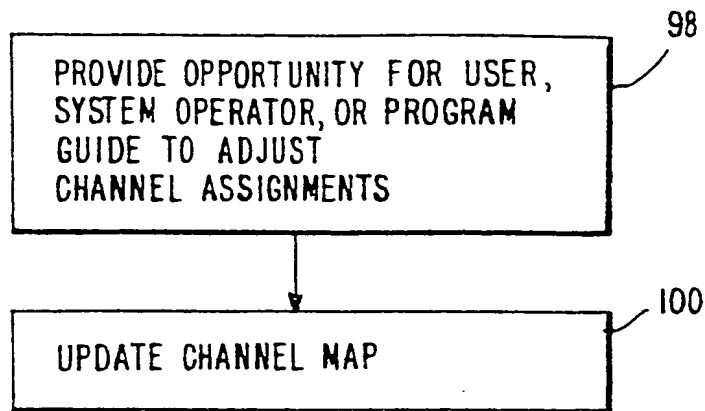
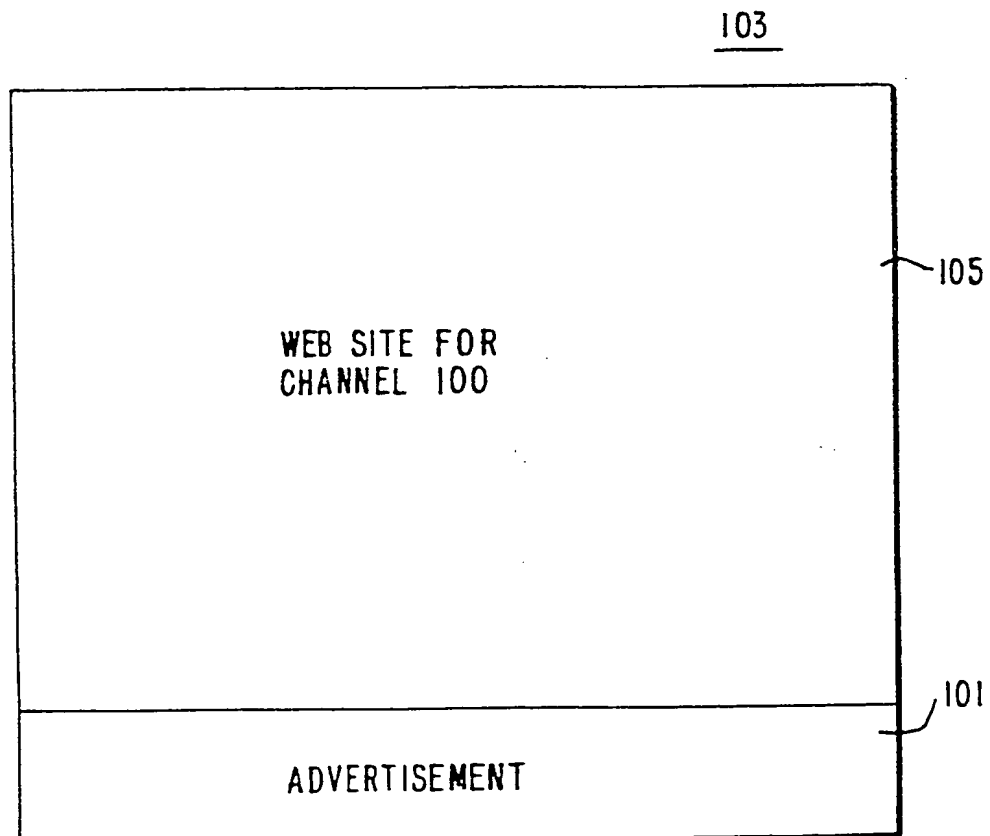
*FIG. 8b*

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*FIG. 8c*



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*FIG. 9**FIG. 10*

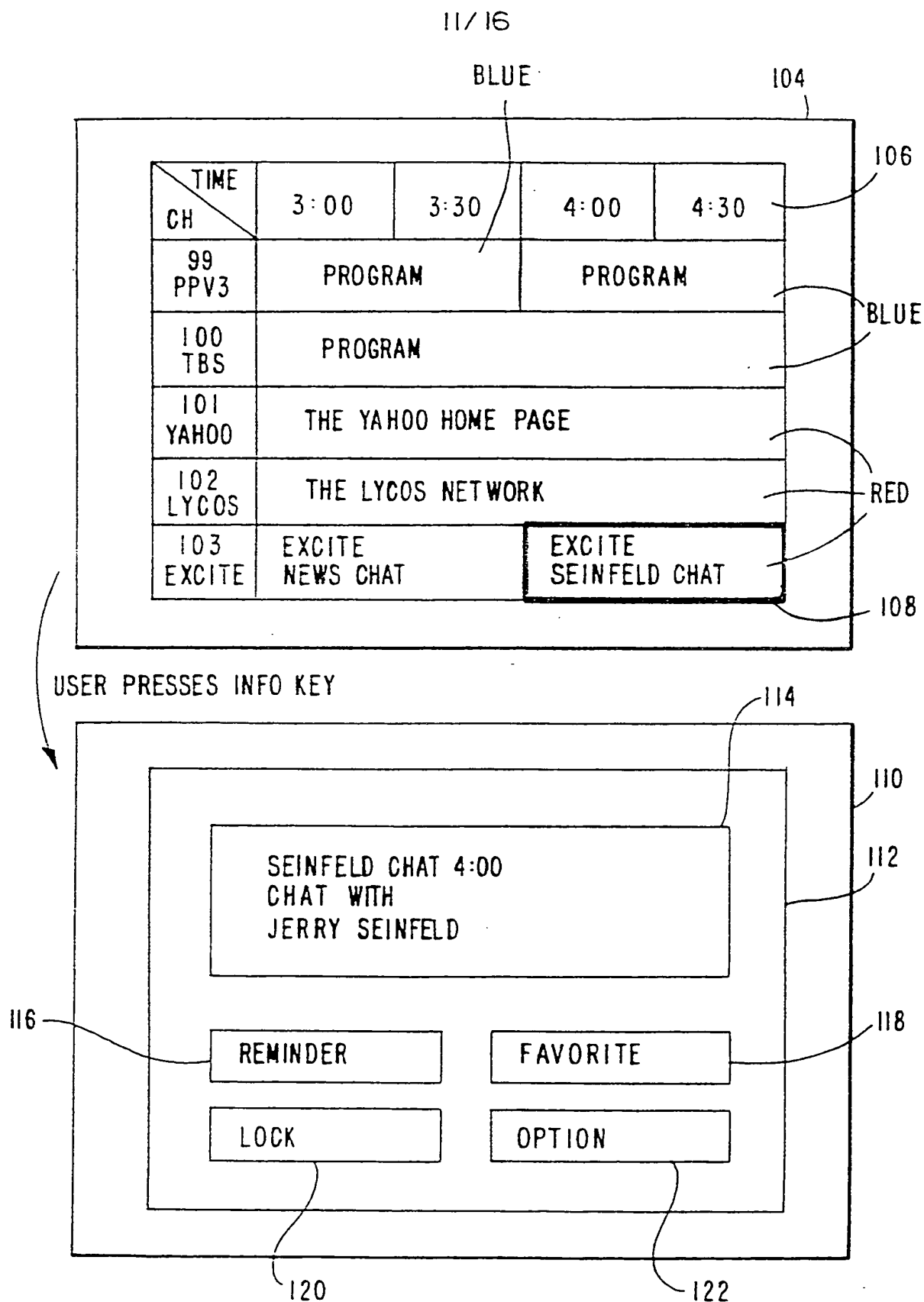
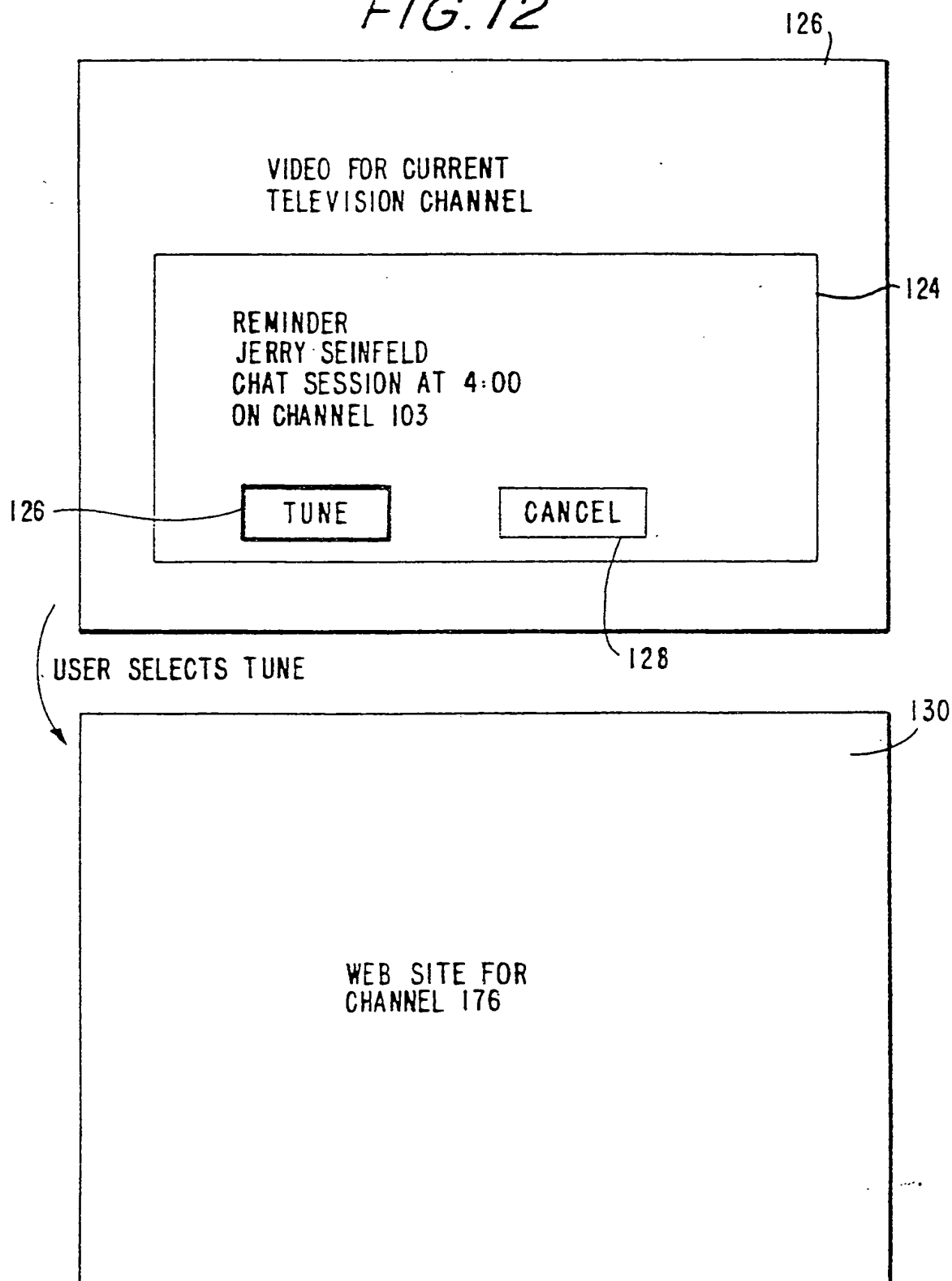


FIG. 11

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FIG. 12



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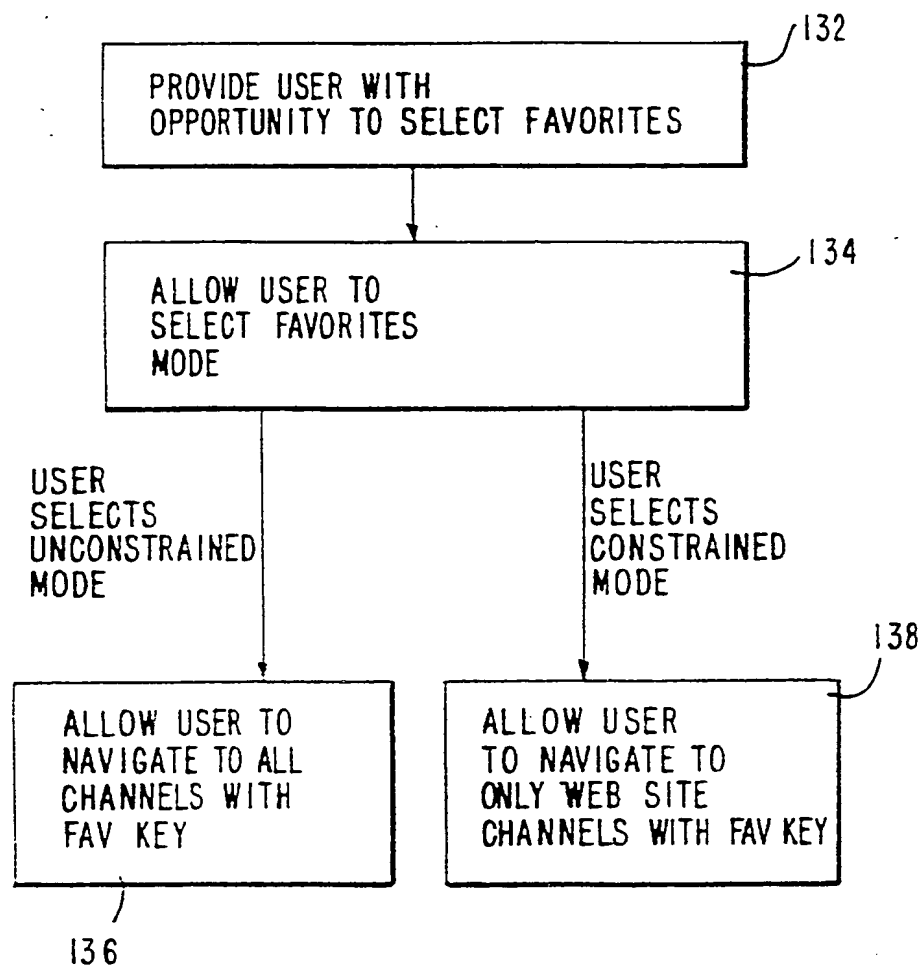
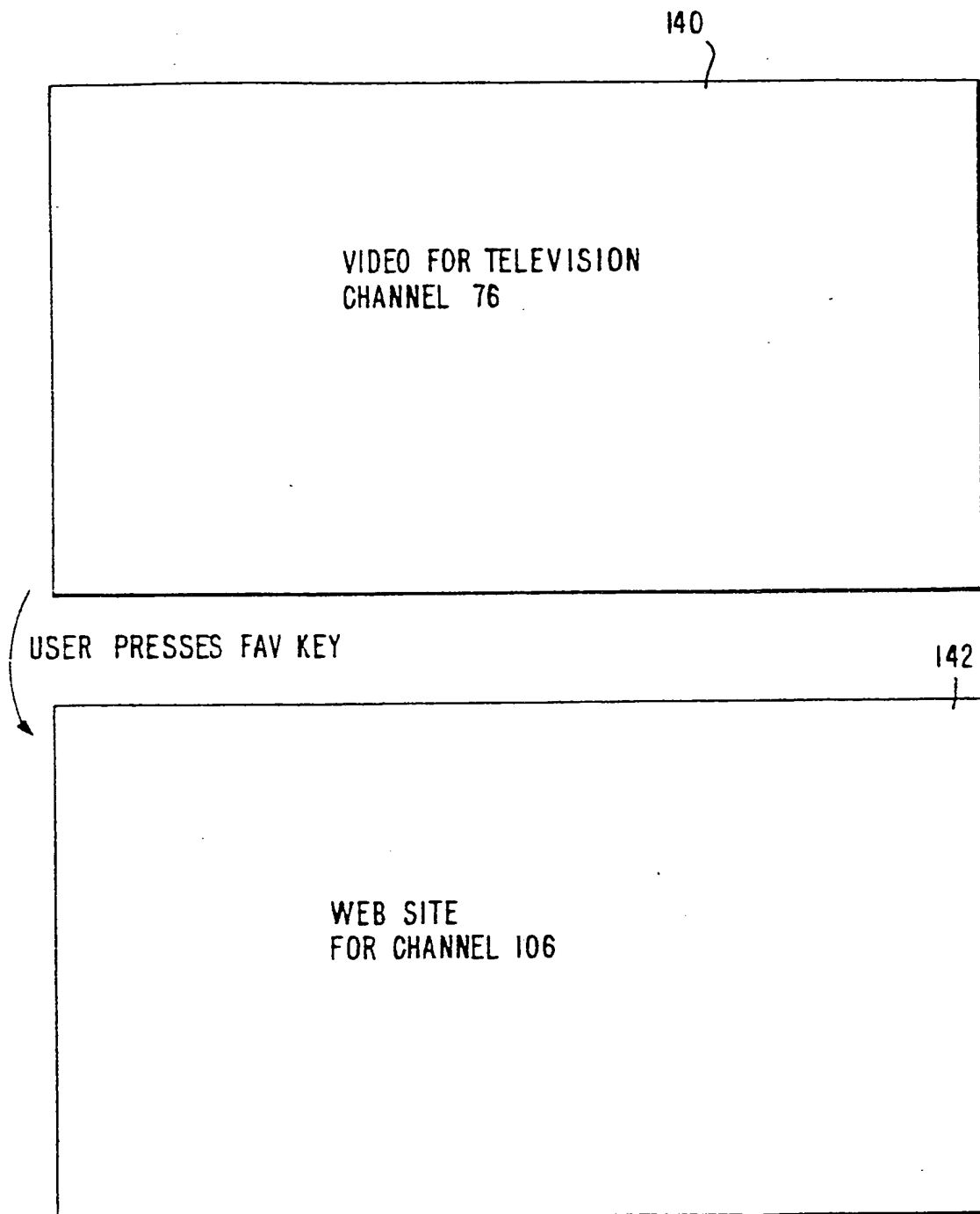


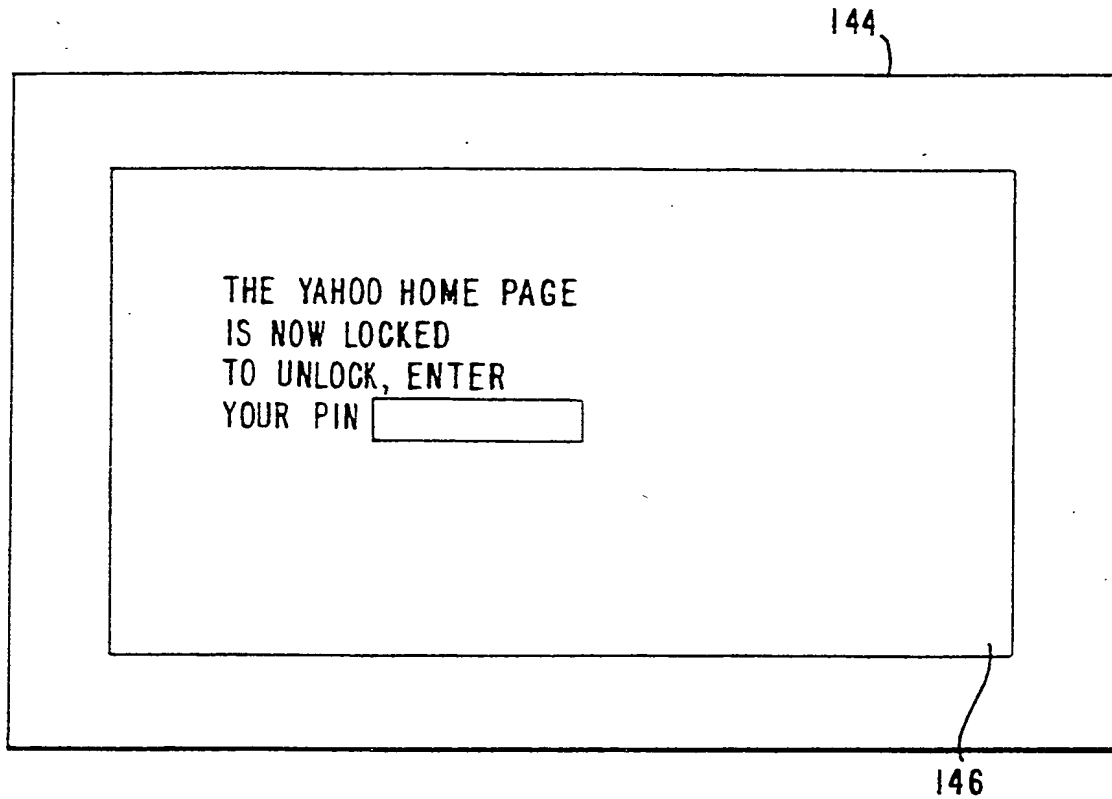
FIG. 13

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*FIG. 14*



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*FIG. 15*

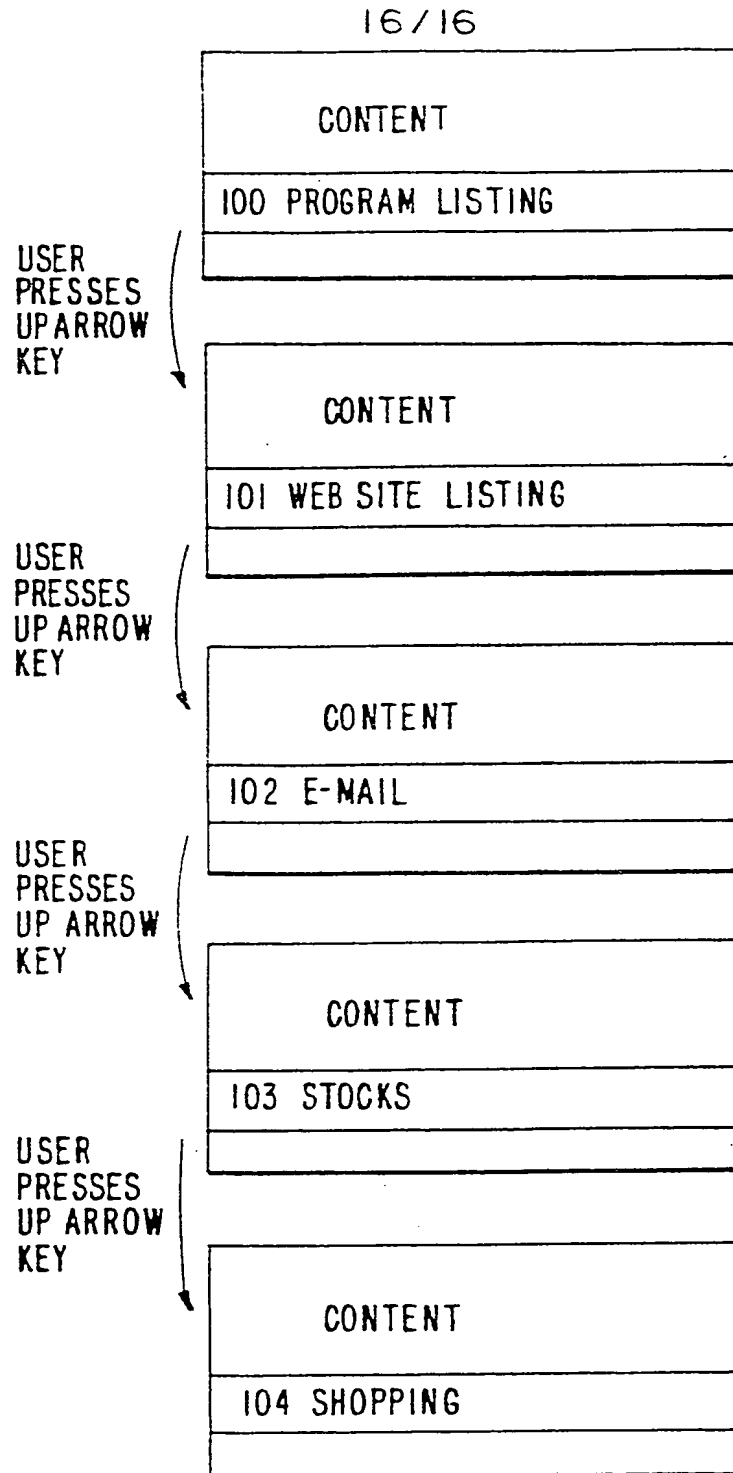


FIG. 16

# INTERNATIONAL SEARCH REPORT

In International Application No

PCT/US 00/30996

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04N5/445

According to International Patent Classification (IPC) or to both national classification and IPC.

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols):  
IPC 7 H04N 606F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ. WPI Data, EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 35843 A (AMIGA DEV LLC) 15 July 1999 (1999-07-15)	69, 71-76, 93-99, 101-108, 112-114, 124-126, 129, 131, 135
A	page 3, line 1 - line 14	1-5, 8, 9, 13, 15, 18, 21, 23-37, 41-48, 54-59, 61, 63, 66, 91, 100, 144
	page 8, line 16 -page 9, line 14; figures 1, 2A, 2B	
	-/--	

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☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	<p>page 13, line 4 - line 7; figure 5B  page 14, line 18 -page 16, line 16; figure 6</p> <p>----</p>	
X	<p>WO 98 43183 A (SONY ELECTRONICS INC)  1 October 1998 (1998-10-01)</p>	<p>69,72,  80,  93-97,  102-107,  112</p>
A	<p>page 2, paragraph 2</p> <p>page 4, line 5. paragraph 2 - line 8;  figure 1  page 5, paragraph 3 -page 6, paragraph 1;  figure 2  page 8, paragraph 1; figure 3B</p> <p>----</p>	<p>70,71,  130,131,  144</p>
X	<p>EP 0 852 361 A (TEXAS INSTRUMENTS INC)  8 July 1998 (1998-07-08)  abstract  column 5, line 26 - line 34; figure 3</p> <p>----</p>	<p>69,72,  93,102</p>
A	<p>WO 99 49717 A (HUGHES ELECTRONICS CORP)  7 October 1999 (1999-10-07)  abstract</p> <p>-----</p>	<p>1,144</p>

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Information on patent family members

In .ational Application No

PCT/US 00/30996

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9935843	A	15-07-1999	AU 1951299 A	26-07-1999
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			AU 6579298 A	20-10-1998
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			EP 0993717 A	19-04-2000

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